

Water management in Ontario



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Ontario Water Resources Commission

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Industrial Pollution Control in Municipalities

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This brochure is intended as a guide to municipal officials, consultants, industrialists and other interested parties in the disposal of industrial wastes to municipal sewers.

The work functions and services of the OWRC Division of Industrial Wastes in this area have been outlined.

The problems caused by industrial wastes in municipal sewers have been discussed in some detail and the responsibilities of municipalities in the regulation of industrial discharges to municipal sewers have been briefly stated. In this regard, a model sewer-use by-law has been proposed, as well as a standard form of agreement between municipalities and industries for the acceptance of industrial wastes into municipal sewerage systems. These should serve as useful guides for municipalities prepared to incorporate such controls.

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I—FUNCTIONS OF THE OWRC DIVISION OF INDUSTRIAL WASTES IN MUNICIPAL POLLUTION CONTROL

1. Municipal Surveys—The Division conducts municipal surveys in order *to define* the overall industrial waste situation for OWRC evaluation of design criteria for municipal sewage works *prior to* construction or expansion of such works. Also, surveys are carried out to determine the sources and nature of industrial waste discharges to storm sewers and natural watercourses. Corrective measures are recommended as a result of such surveys. Surveys might also be carried out after the construction of an OWRC municipal or provincial project should problems arise.

2. Sewer-Use By-Laws—A model by-law (See Appendix I) is available to municipalities for use as a *guide* only in drafting suitable legislation to control and regulate the discharge of industrial wastes to sewerage systems. Final drafts of municipal by-laws may be reviewed and commented on by the Division. With respect to Provincial Sewage Works, the Division gives advice on by-laws, agreements and surcharge formulae. Municipalities are urged to refer the by-law to their solicitor for his approval prior to enactment.

3. Technical Advice—The Division is prepared at all times to offer advice to municipalities on problems relating to the treatment and disposal of industrial wastes. However, municipalities are encouraged to hire consultants to provide this service.

4. Field Surveys—The Division is prepared to undertake investigations of industries with wastes which may be causing *difficult* problems in municipal sewerage systems. Every effort is made to work these surveys into the regular programme of the Division. However, the municipality's engineering advisor should first investigate the problem and suggest the required action. If the problem persists, the field staff of the Division will study the problem and advise. Field work within a municipality will be undertaken when the need is demonstrated by the municipality, the OWRC, or the industry.

5. Surcharge Formulae—The Division is prepared to offer advice, but is reluctant to develop surcharge formulae for municipalities. The exception relates to Provincial Sewage Works.

6. By-Law Enforcement—The staff of this Division are not available to sample industrial flows to municipal sewers for the purpose of by-law enforcement. The routine sampling and analysis of industrial flows to sanitary sewers and by-law enforcement should be the responsibility of the municipalities, and our policy is to encourage municipalities to hire staff for this purpose.

7. Local Advisory Committee (LAC)—Staff of the Division are willing to take part in LAC meetings where treatment problems caused by industrial wastes at municipal sewage plants are discussed.

The policy of the Division stated above applies to all municipalities regardless of the type of financing used for the sewage treatment works.



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II—MUNICIPAL RESPONSIBILITIES IN INDUSTRIAL POLLUTION CONTROL

1. Municipalities should be aware of all industries on the sanitary sewer system. *Current* data on waste flows and characteristics *should be* known. The location of connections to the sanitary and storm systems, and manholes should be noted on a municipal plan.
2. Municipalities should have suitable by-laws to regulate and control the discharge of industrial wastes to the sanitary sewer system. Provisions should be included in the by-laws for entering into special agreements with industries which are not able to meet the by-law limitations, but have wastes amenable to treatment. A draft of such a special agreement, which is provided as a *guide* for municipalities, may be found in Appendix II.
3. Agreements should specify the nature and degree of pretreatment required at the industry before it discharges wastes to the municipal sewerage system.
4. All agreements between the municipality and the industry should be consistent with any agreements between the municipality and the OWRC in the case of Commission owned and/or operated plants.
5. The municipality should ensure that the sewer-use by-law is properly enforced at all times. Towards this end, *technical personnel should be acquired to carry out suitable sampling programmes.*
6. The municipality is responsible for assessing and collecting surcharges from industries. This function can only be administered adequately by always having up-to-date information on all industrial wastes being discharged to the sanitary sewers.
7. The municipality should ensure that any industry which plans process changes, plant expansions or wishes to locate in the municipality, complies with the requirements of the by-law (and of the OWRC if applicable). Furthermore, in order to obtain all possible information related to wastewater discharges to the municipal sewers, the municipality may wish to require industries to supply such information. A suggested information form may be found in Appendix III.

III—PROBLEMS ASSOCIATED WITH INDUSTRIAL WASTES IN SEWERS

Sewage collection and treatment works are generally designed and operated on the basis of handling municipal wastes that are of fairly uniform quality and are received in quantities that follow an expected pattern throughout the day and from one day to another. Most industrial wastes are amenable to treatment with sanitary sewage in municipal treatment plants as long as the quality and quantity of the wastes are in keeping with the ability of the sewerage works and treatment processes to handle them. Since it is generally necessary to accept industrial wastes in municipal works,

it is important that the problems that can arise are recognized and appropriate controls effected to protect both the physical facilities and the treatment processes.

Industrial wastes vary widely in quality and quantity from one process to another, from hour to hour through the operating day, and from one day to another. Some of the characteristics that can be expected to differ from those of “normal” sanitary sewage are indicated in the following, with recommended control requirements or limits:*

NOTE: Milligrams per litre (mg/l) is equivalent to parts per million (ppm).

| | |
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| <p>Flow: Excessive flow or widely fluctuating flow volumes may hydraulically overload the sewers or sewage treatment plant. High periodic flows often occur when an industry is working on a batch or semi-batch schedule.</p> | <p>In order to avoid this problem, industry should provide equalizing facilities to regulate the waste flow or should discharge during periods of low flow if possible. Clean cooling water should be segregated and discharged to storm sewers or open water-courses.</p> |
|---|--|

*It should be noted that in some instances a range is given for the recommended control limits. It is suggested that smaller municipalities with only a few major industries utilize the lower limit while larger municipalities with more and varied industries may use the higher figure. (pH excepted)

| | |
|--|--|
| <p>Temperature: High temperatures of industrial effluents may accelerate corrosion, place thermal stresses on piping materials, adversely affect jointing materials, and cause excessive biological action in the sewers.</p> | <p>It is customary to place an upper limit of 150 degrees Fahrenheit, on the temperature of industrial wastes discharging to sewers.</p> |
|--|--|

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| <p>pH: pH gives an indication of the degree of acidity or alkalinity of the waste. pH values much below or much above 7.0 will tend to accelerate corrosion and adversely affect biological processes at the sewage treatment plant.</p> | <p>It is suggested that waters having a pH lower than 5.5 or higher than 9.5, even after dilution, should not be discharged to the sewerage system.</p> |
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| <p>Acidity and Alkalinity: The acidity of a waste stream is usually caused by small amounts of carbonic acid in equilibrium with free carbon dioxide, mineral acids, and salts of strong acids, and weak bases. The presence of</p> | <p>If industrial wastes are high in acidity or alkalinity, the industry should provide neutralization facilities.</p> |
|--|---|

acidity in fresh domestic sewage indicates an acidic industrial waste. Acidic wastes will accelerate corrosion of sewerage systems. Industrial discharges high in alkalinity can affect the chemical hardness of the sewage, and, if caustic alkalinity is present, calcium carbonate scale can be deposited in sewers resulting in a reduced inside diameter and increased surface roughness.

Organic Loading: Excessive organic loading or widely fluctuating organic loadings may overload or interfere with the biological processes at the treatment plant.

Floating and/or Settleable Solids: Wastes high in suspended solids, when discharged to a sewerage system, may result in clogging and blocking of pipes. If this problem is combined with widely varying flow conditions, the operation of primary treatment facilities at the sewage treatment plant may be affected.

Toxic Materials: Certain materials common to some industrial wastes can be toxic to the organisms responsible for secondary treatment and sludge digestion at the sewage treatment plant and to personnel responsible for the operation and maintenance of the sewerage system. Materials such as cyanide, copper, chromium, and hydrogen sulphide can exhibit these properties. It is essential that the safe upper

To avoid this problem, organic wastes from industry should be regulated and wide BOD fluctuations balanced out. A maximum BOD concentration of between 300 and 500 milligrams per litre is suggested.

Industrial wastes should not have a suspended solids concentration of greater than 350-600 milligrams per litre and should not discharge any materials which might interfere with the operation of the sewers or sewage treatment plant. Examples of materials which should be controlled are ashes, cinders, sand, earth, mud, straw, metal, glue, glass, pigments, rags, textiles, tars, plastics, cellulose, wood products, poultry and animal wastes.

The following range of maximum concentrations are suggested:

| | | |
|-------------------------------|--------|------|
| Cyanide as HCN | —2-5 | mg/l |
| Copper as Cu | —3-8 | mg/l |
| Chromium as Cr | —3-10 | mg/l |
| Nickel as Ni | —3-10 | mg/l |
| Lead as Pb | —3-10 | mg/l |
| Cadmium as Cd | —3-8 | mg/l |
| Zinc as Zn | —3-10 | mg/l |
| Phenolic Compounds | —0.1-1 | mg/l |
| Sulphides as H ₂ S | —2-5 | mg/l |

limits of these toxic materials be determined and that industries meet these limits in their discharge.

Inflammable or Explosive Materials: The possible consequences of having inflammable or explosive material in a sewerage system are obvious. Such materials should be prohibited for discharge to sewers.

Greases and Oils: Greases and fats in industrial discharges may build up in layers, thereby reducing flows in sewers. Oil on the other hand forms films on equipment, thus increasing the need for equipment cleaning. Also, in secondary treatment, the oxygen transfer rate may be reduced.

Malodorous Gases: Some gases, when discharged in industrial wastes are vented to the atmosphere from manholes or at the primary works of a sewage treatment plant, creating offensive conditions in the surrounding neighbourhood. Not only do these gases cause foul odours, but sufficiently high quantities can be poisonous and can prove fatal to men working in the sewers.

Dissolved Salts: Certain salts which may be in solution initially, when contacted by wastes from another source, may precipitate and lead to undesirable conditions. For example, dissolved iron salts in a waste may be precipitated when mixed with other sewage. The reduction in pH may cause a release of free acid which would attack the sewers.

Industry should be required to undertake all feasible precautions to minimize the possibility of any such substances reaching the sewers. The installation of such safety measures as alarms, gravity separation traps, and similar safeguards, should be agreed upon between the municipality and the industry.

It is suggested that wastes, which may contain any volatile oils, or more than 100-200 milligrams per litre, of fat, oil or grease of animal or vegetable origin; or 15 milligrams per litre of oil or grease of mineral origin, not be discharged to the sewerage system.

All noxious or malodorous gases or substances capable of creating a public nuisance, including hydrogen sulphide, carbon monoxide, and ammonia, should not be discharged to the sewerage system.

It is suggested that wastes which may contain dissolved salts such as metallic sulphates and chlorides greater than 1500 milligrams per litre not be discharged to the sewerage system.

Radioactive Wastes: Although the problems associated with radioactive wastes are not normally encountered at the present time, it is expected that in the future these wastes may be present and will require very close controls to protect the public and personnel associated with the sewerage system.

At the present time the regulation of the use and disposal of radioactive materials is largely the responsibility of the Federal Atomic Energy Control Board, which operates under the terms of the Atomic Energy Control Act, R.S.C. 1952, Chapter 11. It is suggested that reference be made to this Act in dealing with the regulation of radioactive materials.

The foregoing recommended controls, if put into effect according to local need, should provide adequate protection of sewerage facilities, including the treatment processes. The same controls that are intended to protect the physical facilities and guard against the discharge of flammable or explosive substances and the emission of toxic gases in sanitary sewers should be applied to storm sewer-use as well. In addition, since wastes that are discharged to storm sewers do not receive treatment prior to discharge to the receiving waters, control limits at the point of discharge to the storm sewer must be in keeping with the suggested OWRC objectives for discharge to open watercourses. These objectives require the restoration and maintenance of water quality for the greatest possible use. In general, waste effluent requirements will be established, taking account of beneficial uses of water and the quality requirements of these uses. A broad set of basic objectives will be established to apply to all waters of the province, however, where required, depending upon use, more stringent objectives may be established for specific drainage basins or drainage areas. These objectives will be examined periodically as new information and conditions develop concerning the effects of wastes on the environment. It is the Commission's objective to require the best practicable treatment or control of waste, adequate to protect and upgrade water quality in the face of population growth and industrial development.

IV—PROCEDURE FOR HANDLING PROBLEMS RELATING TO INDUSTRIAL WASTES ON MUNICIPAL SEWER SYSTEMS

1. Problems of sewage plant operation related to industrial waste discharges should be investigated by the municipality's engineering advisor.
2. Where difficult problems are encountered, and help is required, the guidance of the Division of Industrial Wastes can be sought by the municipality.
3. The nature of the problem should be stated, with an indication of the suspected sources of the trouble, if possible.
4. Staff of the Division will study the problem as quickly as possible and recommend a course of action to the municipality, industry, or OWRC, whichever may be most applicable.

5. Field work will be undertaken only after careful study has shown that this is necessary. Generally, help will usually be given in the form of advice.
6. Immediately after corrective action has been taken, the Division of Industrial Wastes should be notified of the nature and extent of such action.

Appendix I

- (j) “sanitary sewer” means a sewer for the collection and transmission of domestic, commercial and industrial wastes or any of them;
- (k) “sewage” includes drainage, storm water, commercial wastes, industrial wastes, and wastewater;
- (l) “sewage works” means all sewers, sewer systems, sewage pumping stations, sewage treatment plants and other works for the collection, acceptance, transmission, treatment and disposal of sewage or for any one or more of them;
- (m) “Standard Methods” means, unless the context otherwise requires, the methods and procedures set out in the edition of “Standard Methods for the Examination of Water and Wastewater” published by the American Public Health Association and current at the time of any examination of any sewage;
- (n) “storm sewer” means a sewer for the collection and transmission of storm water run-off, drainage or sewage derived from the draining of land or any one or more of them;
- (o) “suspended solids” means solid matter in or on a liquid, which matter is removable by filtering with a glass fibre filter paper equivalent to a Reeve Angel Glass Fibre Filter Paper, No. 934 AH.;
- (p) “watercourse” means an open channel, ditch or depression, either natural or man-made, in which a flow of storm water occurs either continuously or intermittently.

2. No person shall discharge, into land drainage works, private branch drains or connections to any sewer, sewer system or sewage works for the carrying away of domestic sewage or industrial wastes or both, which are connected directly or indirectly to the sewage system, (provided by the Ontario Water Resources Commission under an agreement between the Municipality and the Ontario Water Resources Commission and dated the day of _____ A.D. 19 __,) any matter or quantity of matter which may be or become harmful to any sewage works or which may interfere with their proper operation, or which may impair or interfere with any sewage treatment process, or which may or may tend to obstruct any sewer, or which may be or may become a hazard to persons, property or animals, and, without limiting the generality of the foregoing, any of the following:

- (a) sewage containing more than a total of _____ milligrams per litre of oil, fat and grease of animal and vegetable origin;
- (b) sewage containing more than a total of 15 milligrams per litre of oil, grease and tar of mineral origin;
- (c) sewage at a temperature in excess of 150 degrees fahrenheit;

- (d) subject to subparagraph (b) hereof, flammable or explosive matter, and without limiting the generality of the foregoing, gasoline, benzene, naphtha, fuel oil, acetone or other solvents;
- (e) any quantity of matter capable of obstructing the flow in or interfering with the proper operation of any part of the sewage works, and without limiting the generality of the foregoing, any such quantity of ashes, cinders, garbage, sand, straw, mud, shavings, metal, glass, rags, feathers, plastic, wood or cellulose.
- (f) sewage having a pH less than 5.5 or greater than 9.5 or which due to its nature or content, becomes less than 5.5 or greater than 9.5 during transmission to a sewage treatment plant;
- (g) sewage of which the B.O.D. exceeds milligrams per litre;
- (h) sewage in which suspended solids exceed milligrams per litre;
- (i) sewage that may cause a nuisance, and without limiting the generality of the foregoing, sewage containing hydrogen sulphide, carbon disulphide, ammonia, trichloroethylene, sulphur dioxide, formaldehyde, chlorine, bromine, or pyridine, in such quantity that an offensive odour could emanate from the sewage works or could cause a nuisance;
- (j) sewage containing animal waste, and without limiting the generality of the foregoing, containing intestines, stomach casings, intestinal contents, hides, hooves, toenails, horns, bones or poultry heads or sewage containing hair, wool, fur, feathers, paunch manure or fleshings in a quantity sufficient to interfere with the proper operation of the sewage works;
- (k) sewage containing any of the following matter in excess of the indicated concentrations:

| | | |
|--|---|---------------------------|
| phenolic compounds | — | milligrams per litre |
| total cyanides, expressed as HCN | — | milligrams per litre |
| total sulphides, expressed as H ₂ S | — | milligrams per litre |
| total copper, expressed as Cu | — | milligrams per litre |
| total chromium, expressed as Cr | — | milligrams per litre |
| total nickel, expressed as Ni | — | milligrams per litre |
| total lead, expressed as Pb | — | milligrams per litre |
| total zinc, expressed as Zn | — | milligrams per litre |
| total cadmium, expressed as Cd | — | milligrams per litre |
| chlorides, as Cl | — | 1500 milligrams per litre |
| sulphates, as SO ₄ | — | 1500 milligrams per litre |
- (l) radioactive materials except as may be permitted under The Atomic Energy Control Act R.S.C. 1952, chapter 11, and amendments thereto and regulations thereunder.

- (m) storm run-off, sewage derived from the drainage of lands or roofs or water used for cooling purposes.

3. No person shall discharge, cause or permit the discharge or deposit into or in (i) land drainage works, private branch drains or connections to any sewer, sewer system or sewage works for the carrying away of domestic sewage or industrial wastes or both, that are capable of discharging sewage into any well, lake, river, pond, spring, stream, reservoir, or other water or watercourse, or onto any shore or bank thereof, or into any place from which the sewage may be discharged into or deposited in any well, lake, river, pond, spring, stream, reservoir, or other water or watercourse, (ii) any storm sewer or any sewer connected to a storm sewer, any of the following:

- (a) sewage at a temperature in excess of one hundred and fifty degrees fahrenheit (150 degrees F.);
- (b) sewage containing more than a total of fifteen (15) milligrams per litre of fat, oil, grease and other matter which is soluble in ether;
- (c) subject to subparagraph (b) hereof, flammable or explosive matter, and without limiting the generality of the foregoing, gasoline, benzene, naptha, fuel oil, acetone or other solvents;
- (d) any quantity of matter capable of obstructing the flow in or interfering with the proper operation of any part of the sewage works and without limiting the generality of the foregoing, any such quantity of ashes, cinders, garbage, sand, straw, mud, shavings, metal, glass, rags, feathers, plastics, wood, cellulose, tar, animal wastes or other matter that is not dissolved in a liquid at the time of its introduction into the sewage works;
- (e) sewage containing any matter in a quantity or concentration that will or may cause the death of or injury of any person, property or animal;
- (f) sewage having a pH less than 5.5 or greater than 9.5 or which due to its nature or content becomes less than 5.5 or greater than 9.5 during transmission through the sewage works;
- (g) sewage in which suspended solids content exceed fifteen (15) milligrams per litre or sewage containing any suspended solids which are incapable of passing through a screen having openings not larger than one quarter ($\frac{1}{4}$) of an inch square;
- (h) sewage that has or may cause an offensive odour, and without limiting the generality of the foregoing, sewage containing hydrogen sulphide, carbon disulphide, ammonia, trichloroethylene, sulphur dioxide, formaldehyde, chlorine, bromine, pyridine, in such quantity that an offensive odour could emanate from the sewage works or could cause a nuisance;
- (i) sewage of which the B.O.D. exceeds fifteen (15) milligrams per litre;

(j) sewage containing coloured matter which sewage would require a dilution in excess of four (4) parts of distilled water to one (1) part of such sewage to produce a mixture the colour of which is not distinguishable from that of distilled water when tested in accordance with the Ontario Water Resources Commission Standard Laboratory Sewage Colour Determination Test;

(k) sewage containing toxic or poisonous matter in sufficient quantity to constitute a hazard to persons, property or animals, and, without limiting the generality of the foregoing, sewage containing any of the following matter in excess of the indicated concentrations:

| | | | |
|----------------------------------|---|-------|----------------------|
| phenolic compounds | — | 0.020 | milligrams per litre |
| total cyanides, expressed as HCN | — | 0.1 | milligrams per litre |
| total cadmium, expressed as Cd | — | 1.0 | milligrams per litre |
| total chromium, expressed as Cr | — | 1.0 | milligrams per litre |
| total copper, expressed as Cu | — | 1.0 | milligrams per litre |
| total nickel, expressed as Ni | — | 1.0 | milligrams per litre |
| total zinc, expressed as Zn | — | 5.0 | milligrams per litre |
| total iron, expressed as Fe | — | 17.0 | milligrams per litre |
| chlorides, as Cl | — | 1500 | milligrams per litre |
| sulphates, as SO ₄ | — | 1500 | milligrams per litre |

(l) sewage in which the coliform count exceeds two thousand four hundred (2400) per one hundred (100) millilitres as determined by Standard Methods;

(m) radioactive materials except as may be permitted under The Atomic Energy Control Act, R.S.C. 1952 chapter 11, and amendments thereto and regulations thereunder.

4. Except as otherwise specifically provided in this by-law all tests, measurements, analyses and examinations of sewage, its characteristics or contents shall be carried out in accordance with Standard Methods.

5. The discharge of sewage that would otherwise be prohibited by this by-law may be permitted to an extent fixed by agreement with the Municipality under such conditions with respect to payment or otherwise as may be necessary to compensate for any additional costs of treatment. (Any such agreement shall be subject to the approval of the Ontario Water Resources Commission.)

6. Every person who contravenes any provision of this by-law shall upon conviction thereof, forfeit and pay, at the discretion of the convicting magistrate, a penalty (exclusive of costs) not exceeding dollars () for each offence. Each day in which any such contravention occurs shall be deemed to be a separate offence. Such penalties shall be recoverable under the provisions of The Summary Convictions Act.

**DRAFT—SPECIAL AGREEMENT BETWEEN
MUNICIPALITY AND INDUSTRY**

This Agreement made in duplicate this day of
A.D. 19 .

BETWEEN

The (name of municipality) hereinafter called the
OF THE FIRST PART

AND

(name of industry) OF THE SECOND PART

WHEREAS

(name of industry) is a company having manufacturing processes within the (name of municipality), such manufacturing processes producing process wastes the characteristics of which are considered by the city to be unacceptable for discharge of the said wastes to a municipal sanitary sewer.

AND WHEREAS

(name of industry) is desirous of discharging its process wastes to the municipal sanitary sewer located on or adjacent to the property of (name of industry).

AND WHEREAS

The (name of municipality) owns and maintains the sewer through which the process wastes of the (name of industry) would pass

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and the sum of of lawful money of Canada now paid by (name of industry) to the city (the receipt of which is hereby acknowledged) the parties hereto mutually covenant and agree as follows:

1. (name of industry) is permitted to discharge its processing wastes to the municipal sanitary sewers provided that the (name of industry) meets the pretreatment requirements and/or maximum permissible discharge limits as follows:

(Outline of requirements and limits for various contaminants in the waste).

2. This Agreement to remain in force for a period of one year from the date of the initial discharge of (name of industry) effluent to the sanitary sewerage system and subject to review and revision at the end of the period and thereafter continue subject to review and revision at three (3) month intervals as deemed necessary by either party if:

(a) in the opinion of the municipality, the process wastes are causing damage to, and/or materially increasing maintenance costs and/or causing dangerous conditions in the sewers or pumping stations leading to the sewage treatment plant.

(b) in the opinion of the municipality, the process wastes are causing damage to and/or materially increasing operating costs and/or causing a dangerous condition in the sewage treatment process as operated by the municipality.

(c) in the opinion of (name of industry) the cost is excessive by reason of change in processes or for other reasons. Any changes necessary in the treatment of the wastes by (name of industry) as a result of such reviews in order to bring the characteristics of the process wastes within the terms of this Agreement, shall be made within a period of three (3) months from the date of written notification of the necessity of such changes.

3. (name of industry) in consideration for the municipality accepting the said process wastes into the municipal sanitary sewer under the conditions of the Agreement for a period of one year, hereby agrees and consents to pay a sum of for additional cost incurred by the city in sewage treatment.

4. The municipality shall establish such necessary sampling and inspection in the municipal sewerage system as is necessary to ensure that the intent of this Agreement is fulfilled. The annual charge for treatment of the process wastes shall be subject to review at the termination of this Agreement.

This agreement shall enure to the benefit of, and be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

This Agreement shall be effective as and from the day of A.D. 19 .

IN WITNESS WHEREOF the parties hereto have hereunto affixed their Corporate Seals, (etc.)

Appendix III

INFORMATION FORM RELATING TO THE DISCHARGE OF INDUSTRIAL WASTES TO MUNICIPAL SEWER SYSTEMS

The Wastes to be in compliance with Sewer-Use By-Law #..... and the maximum concentration of contaminants contained therein.

NOTE: All flows that are to be directed to a storm system or water-course must be approved by the Ontario Water Resources Commission.

An information form shall contain the completed attached questionnaire, supplemented by plans, reports, etc., to satisfy the following items A to D, where applicable:

A. Process Description, Water Supply and Waste Disposal

A written description including a flow diagram of industrial process(es) in sufficient detail to indicate:

Quantity of water used in specific process(es) and/or industrial operations (Item 6).

Quantity and measured (or estimated) quality of wastes arising from water use or other liquids (Items 7 and 8).

Where the quantity and/or quality of wastes varies according to industrial operating procedure, the variation in rates of flow (normal, maximum and minimum) and the maximum and average concentrations of significant waste components shall be given.

B. Physical Lay-Out

1. Lay-out sketch of property (to scale or approximate) to co-ordinate buildings, treatment or disposal works, property boundaries, effluent line(s), and proposed sanitary sewer connections.

C. Design of Treatment Works

Engineering reports on the proposed works shall indicate:

Expected flow and concentrations of liquid industrial wastes, and means of measuring, from all processes contributing to the treatment plant influent (Items 7 and 8). A flow diagram is suggested.

Function, capacity and operation of the individual components comprising the pretreatment facilities, and the system as a whole. Performance data should be given where possible.

Quantities of treatment chemicals.

Expected degree of reduction in pollutional load to be effected by the system. Supporting research or pilot plant data shall be given where possible.

A fair statement setting forth the expected bacterial, physical, chemical and other known characteristics of the pretreated effluent (Item 9).

Method of sludge disposal, and disposal of other solid or liquid process wastes.

D. Plans of Treatment Works

Engineering drawings shall include plans and profiles of

Plans and profiles of the sewer(s).

- (a) Company officer responsible for effluent control

- 17

- (c) Drinking and Sanitary
- (d) Other
- TOTAL SUPPLY
- If daily supply varies from above total, explain in appendix.....

7. Waste Disposal

| | Origin of Wastes | Discharge to | Imperial Gallons Per Day | | |
|---------------------------------|------------------|--------------|--------------------------|---------|---------|
| | | | Average | Maximum | Minimum |
| (a) Process Wastes (itemize) | | | | | |
| | | | | | |
| | | | | | |
| (b) Cooling and Condenser Water | | | | | |
| (c) Sanitary Sewage | | | | | |
| (d) Other | | | | | |
| TOTAL | | | | | |

If combined daily waste flow for disposal varies from above total, explain in appendix.....

8. Expected Characteristics of Waste(s) before treatment
9. Expected Characteristics of pretreated waste(s)
10. Proposed method of pretreated effluent(s) flow measurement
11. Proposed starting date for construction of proposed industrial waste pretreatment or control works
- Proposed completion date of works.....
12. Estimate of capital cost of proposed industrial waste treatment or control works
- Engineering charges.....
- Estimate of annual operating costs of proposed works

DATE..... Signature.....

Date Due

NOV 29 1973

ONTARIO WATER RESOURCES COMM.
DIVISION OF INDUSTRIAL WASTES.

INDUSTRIAL POLLUTION CONTROL IN
MUNICIPALITIES.

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Ontario Water Resources Commission

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